Whether, when and how to adopt/adapt HL7 Datatypes?

- HL7 has very rich set of datatypes
  - Physical quantities, postal addresses, entity names (<given>Jack</given> <family>Smith</family>), monetary quantity, point in time
  - Standard codes for different categories of incomplete or missing information (e.g. not applicable, not available, asked but not known, not asked …)
  - Collections – set, list, bag, interval
  - Standard descriptions of uncertainty and probability distributions
  - Encapsulated data – by value (included in message) or by reference (URLs with hash values specified for safety)

Whether and how to adopt/adapt HL7 Datatypes?

- Use of HL7 datatypes in clinical trials domain important for interoperability of caBIG clinical trials software with enterprise clinical systems
- Support reporting to regulatory agencies
- Clinical trial and ICR are not disjoint
  - Increasingly large space of clinical studies involving investigation of effects of genetic polymorphisms, gene expression, proteomics, epigenetics, imaging
  - Do we want to support universal translation between caDSR common data elements, XML Schema representation of CDE information and HL7 datatypes?

More on Datatypes

- Globally defined, versioned XML schema (Mobius GME) can be used to provide overall caBIG datatyping
- Can write converters that translate Mobius GME definitions to HL7 specification.
- This would imply that HL7 datatype definitions be taken into account when adapting/developing ISO 11179/caDSR metadata definitions and in constructing GME Schema definitions

Object Identifiers

- HL7 version 3 uses Object Identifiers (OIDs) to identify coding schemes and identification schemes
  - OIDs are strings of numbers indicating a path in a tree
  - The first set of branches is allocated by ISO, additional levels are allocated by various organizations
  - HL7 allocates OIDs for coding schemes: e.g. SNOMED CT, OCS Specialty Codes
  - OID is specified in the codeSystem attribute of an instance of an HL7 coded datatype where the code attribute is a code from the specified scheme
  - An OID can be included as a fixed attribute in a message specification (rather than with each instance)
  - A single message can use OIDs from multiple sources and a single scheme can be identified by more than one OID
  - An OID can be requested for new coding or identification schemes

caGRID

- caGRID can register its own ontologies as ISO OIDs
- caGRID can make use of ontologies maintained by other organizations and maintain association with ISO OIDs (e.g. LOINC, SNOMED-CT)
- Need to map between ISO/HL7 and caBIG ontologies?
  - Will need to translate incoming HL7 messages and generate outgoing HL7 messages